

Remarks

Reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

1. **Drawing Objections:** Figures 1 and 2 have been corrected to include a detail of the lower sidewall profiled rubber mix element 6. Figure 2 has been further corrected to include a detail of the crescent-shaped profiled rubber element 80. All corrections were made in conformance with the specification and claims as filed. No new matter was added.
2. **Claim Objections:** Claims 13 and 15 have been amended following the Examiner's suggestions.
3. **Rejection of Claims 1-20 under 35 USC § 112:** Claims 1 and 5 have been amended to correct the punctuation errors. Claims 1, 4, 9, and 15 were amended by adding the descriptive terms "lower sidewall" profiled rubber element. In this manner the lower sidewall profiled rubber element 6 is distinguished from the crescent-shaped profiled rubber element 80 and the wedge-shaped element 3.
4. **Rejection of Claims 1 and 2 under 35 USC § 103(a)**
 - Claims 1-2, 4-6, 8-9, 11, 15, and 20 are rejected over Chandezon ('038) in view of Boileau ('913): The tire design disclosed in Chandezon teaches a carcass profile having a tangent angle with the bead wire at least equal to 70 degrees. Note that Claim 1, as amended, now recites a tangent angle "less than 70 degrees." Applicant asserts that it is well known in the tire art that, for a given inflation pressure, the tension in the carcass is proportional to the radius of curvature of the carcass profile, and the rigidities (vertical and/or lateral) of the tire increase if the carcass tension is increased. (See, for example, Clark, S. K., ed. Mechanics of Pneumatic Tires 2nd Ed., Ch. 4, USDOT) For the person skilled in the tire art who would follow the teaching of Chandezon, such teaching leads to a carcass profile having an increased radius of curvature relative to the carcass profile curvature of the instant invention. Thus, a tire designer seeking to increase the rigidity of a tire would be motivated by Chandezon's teaching only to increase the tangent angle so as to increase the radius of curvature of the carcass.

The instant invention obtains its overall good performance by utilizing a carcass profile having a

relatively smaller radius of curvature. The reduced inherent rigidity due to this profile is augmented by the addition of the sidewall ring and the lower sidewall profiled rubber element. Both are necessary to the functioning of the instant invention. The instant invention acts like a frustoconical spring (Belleville-type spring) whose outer annulus is formed by the sidewall ring and whose fingers are formed by the lower sidewall element, and whose inner annulus is formed by the bead reinforcement. Any relative displacement of the bead wires and the sidewall ring will place the sidewall ring in tension, thereby adding to the rigidity of the lower sidewall portion. Neither of these elements is present in the teaching or disclosure of Chandezon.

Boileau's teaching to add a sidewall reinforcement must be read in its entirety. That is, Boileau teaches the addition of a sidewall reinforcement in combination with an upper sidewall portion having a "meridian profile that is substantially straight" and a lower sidewall portion having a "meridian profile that is strongly curved." A person skilled in the tire art would immediately realize that the highly curved lower portion would have greatly reduced rigidity and would not follow such teaching. In fact, the skilled person in possession of the invention of Chandezon would simply increase the tangent angle of the carcass profile. Furthermore, Boileau and Chandezon are both silent on the addition of a lower sidewall profiled rubber element. Thus, Boileau teaches away from the stated purpose of the instant invention to have an increased rigidity in the lower sidewall.

- Claim 3 is rejected over Chandezon ('038) in view of Boileau ('913): Neither reference provides any teaching or suggestion to specify the angle of at most 70 degrees between the bead reinforcement and the additional sidewall ring. Furthermore, neither reference provides any teaching or disclosure to arrive at a design conforming to the dual limitation of Claim 3 where the aforementioned angle of the sidewall ring in combination with a carcass tangent angle of less than 70 degrees. As one skilled in the tire art, the Applicant respectfully disagrees with the Examiner's unsupported assertion that the recited elements of claim 3 are "a common and everyday occurrence throughout the tie design art." Applicant asserts that as the Boileau patent is the only reference proffered to represents the prior art for sidewall rings. Boileau has a date of issue in 1972, a passage of nearly 30 years between Chandezon and the instant invention. Absent intervening examples, this long passage of time proves the rarity and uncommon nature of the design as well as the difficulty to solve the technical problem.

The certainly demonstrates the non-obvious nature of this invention. The Applicant respectfully requests that the Examiner provide documentary proof of his assertions.

- Claims 12, 16, and 19 is rejected over Chandezon ('038) in view of Boileau ('913) as applied to claim 1 and further in view of Dewitt ('679): The amendment to claim 1 and the foregoing remarks and arguments pertaining to Claim 1 now place it in a condition for allowance. Therefore, Claims 12, 16, and 19, as claims dependent on Claim 1, are also in a condition for allowance.

Applicant respectfully submits that the foregoing amendments to the drawings, the claims, in view of the remarks now place all claims in a condition for allowance.

Respectfully submitted,



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Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1 and 2. The first two sheets replace the original Sheet 1/4 including Fig. 1. In Fig. 1, a detail showing an exemplary embodiment of the profile of element 6 has been added. The second two sheets replace the original Sheet 2/4 including Fig. 2. In Fig. 2, a detail showing an exemplary embodiment of the profiles of element 6 and element 80 have been added.

Attachments: Replacement Sheets (2), Annotated Sheets (2) Showing Changes



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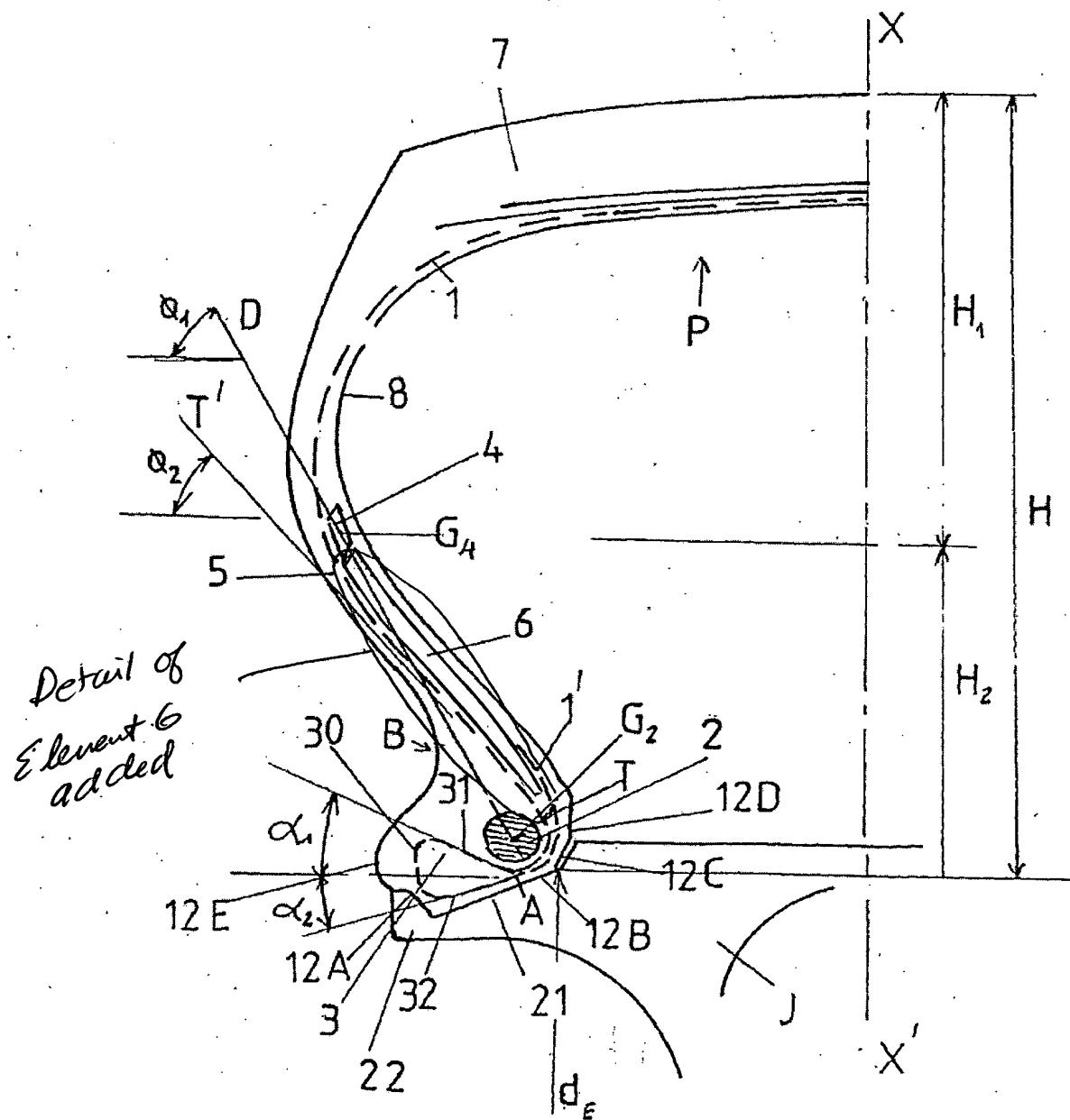


FIG 1



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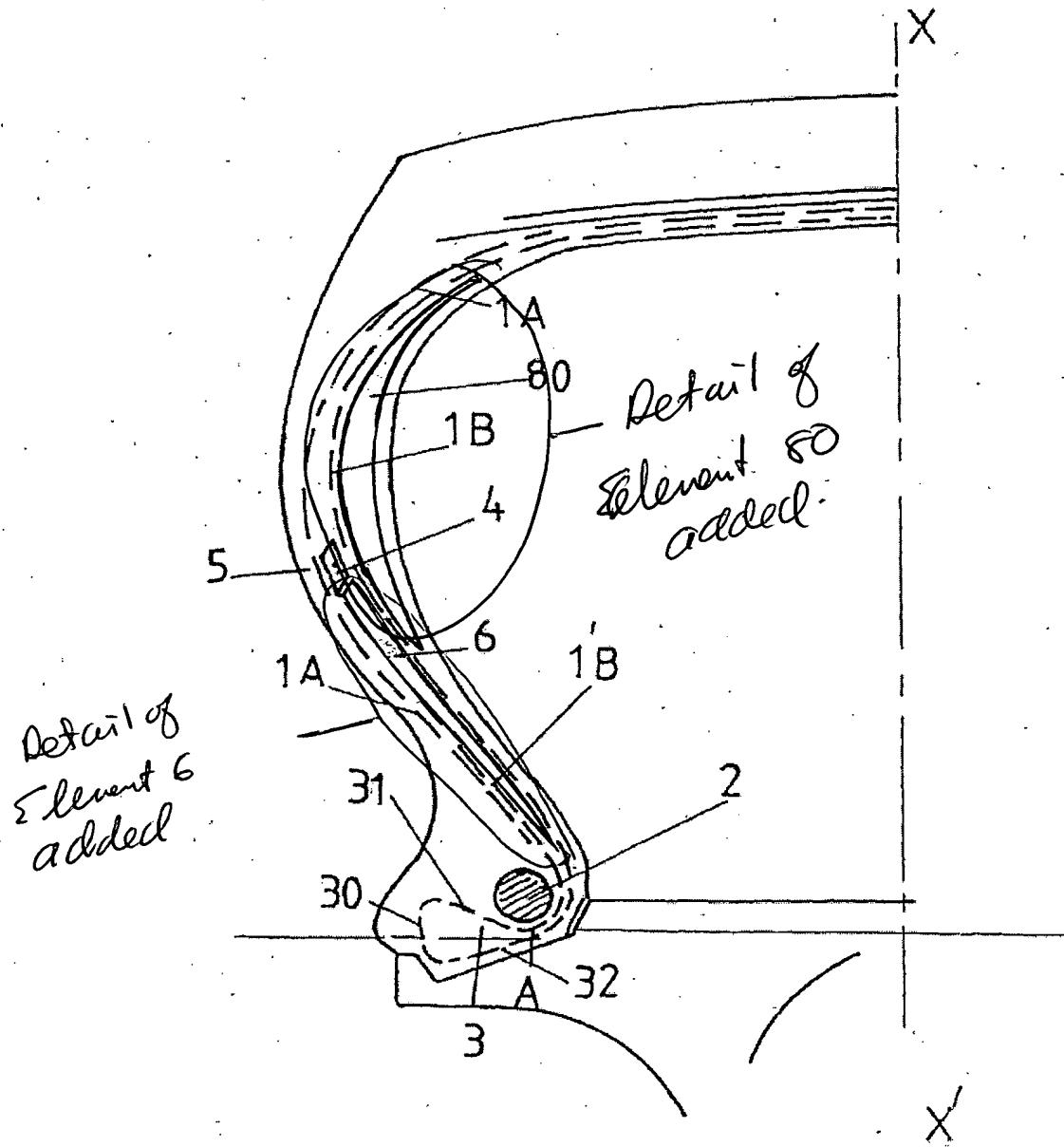


FIG 2